CLAIMS

I claim:

5	1. comprising:	A method for manufacturing a plurality of resistors
10		a) applying a lithographic process for etching a top portion of a metal plate for precisely defining a plurality of electrode columns on said metal plate;
	2.	The method of claim 1 further comprising:
15		b) electroplating at least an electrode layer on each of said electrode columns to form an electrode for each of said electrode column; and
·		c) scribing said metal plate into a plurality of resistors each comprising at least two electrodes formed in step b).
20	3.	The method of claim 1 wherein:
25		said step a) of applying a lithographic process for etching a top portion of a metal plate is a step of etching a top portion of a metal plate comprising nickel-copper alloy.
	4.	The method of claim 1 wherein:
60		said step b) of electroplating at least an electrode layer on each of said electrode columns is a step of electroplating a copper layer and a tin-lead alloy layer on each of said

electrode columns.

5. The method of claim 1 wherein:

said step a) of applying a lithographic process for etching a top portion of a metal plate for precisely defining a plurality of electrode columns on said metal plate is a step of forming a plurality of resistors each having a precisely defined resistance ranging between one milli-ohm to one ohm.

6. The method of claim 1 wherein:

said step a) of applying a lithographic process for etching a top portion of a metal plate for precisely defining a plurality of electrode columns on said metal plate is a step of forming a plurality of resistors each having a thickness ranging between 0.05 to 0.5 millimeters and a length ranging between 1.0 to 7.0 millimeters.

7. The method of claim 1 wherein:

said step a) of applying a lithographic process for etching a top portion of a metal plate for precisely defining a plurality of electrode columns on said metal plate is a step of forming said electrode columns each having a width and length ranging between 0.1 to 3.2 millimeter, a height ranging between 0.05 to 0.5 millimeters and distance ranging between 0.4 to 6.2 millimeters between every two electrode columns.

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	comprising:	A method for manufacturing a plurality of resistors
5		a) applying an electroplating process for precisely forming a plurality of column-shaped electrodes on a metal plate.
	9.	The method of claim 7 further comprising a step:
10		b) scribing said metal plate into a plurality of resistors each comprising at least two electrodes formed in step a).
	10.	The method of claim 8 wherein:
15		said step a) of applying an electroplating process for precisely forming a plurality of column-shaped electrodes on a metal plate is a step of electroplating said electrodes on a metal plate comprising nickel-copper alloy.
20	11.	The method of claim 8 wherein:
		said step a) of applying an electroplating process for precisely forming a plurality of column-shaped electrodes is a step of electroplating a copper layer and a tin-lead alloy layer to form each of said electrodes.
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12. The method of claim 8 wherein:

said step a) of applying an electroplating process for precisely forming a plurality of column-shaped electrodes is a step of forming a plurality of resistors each having a precisely defined resistance ranging between one milli-ohm to one ohm.

13. The method of claim 8 wherein:

said step a) of applying an electroplating process for precisely forming a plurality of column-shaped electrodes is a step of forming a plurality of resistors each having a thickness ranging between 0.05 to 0.5 millimeters and a length ranging between 1.0 to 7.0 millimeters.

14. The method of claim 8 wherein:

said step a) of applying an electroplating process for precisely forming a plurality of column-shaped electrodes is a step of forming said electrodes each having a width and length ranging between 0.1 to 3.2 millimeter, a height ranging between 0.05 to 0.5 millimeters and distance ranging between 0.4 to 6.2 millimeters between every two electrodes.

15. A resistor array supported on a metal plate composed of a low temperature coefficient of resistance (TCR) metallic material, said resistor array comprising:

a plurality of electrode columns composed of said low TCR metallic material disposed on said metal plate.

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The resistor array of claim 15 further comprising: 16. at least an electrode layer disposed on each of said electrode columns to form an electrode for each of said electrode 5 columns. 17. The resistor array of claim 15 further comprising: a plurality of scribing lines for scribing said metal plate into 10 a plurality of resistors each domprising at least two electrodes. The resistor array of claim \5\wherein: 18. said low TCR metallic material composed of said metal plate 15 further comprises a nickel-copper alloy. The resistor array of claim 15 wherein: 19. 20 said electrode layer disposed on each of said electrode columns further comprises a copper layer and a tin-lead alloy layer on each of said electrode columns

	20\	The resistor array of claim 15 wherein:
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		\said plurality of electrode columns disposed on said metal
_		plate having a precisely defined position for providing
5		precisely defined resistance for each of said resistors ranging
		between one milli-ohm to one ohm.
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	21.	The resistor array of claim 15 wherein:
10		each of said plurality of resistors having a thickness ranging
		between 0.05 to 0.5 millimeters and a length ranging
		between 1.0 to 7.0 millimeters.
	22.	The resistor array of claim 18 wherein:
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		each of said plurality of electrode columns on said metal
		plate having a width and length ranging between 0.1 to 3.2
		millimeter, a height ranging between 0.05 to 0.5 millimeters
		and distance ranging between 0.4 to 6.2 millimeters between
20		every two electrode columns.
		every two electrode columns.
	23.	A resistor array supported on a metal plate composed of a
		ture coefficient of resistance (TCR) metallic material, said
		y comprising:
25	resistor array	comprising.
20		a plurality of column about a last while tall it.
		a plurality of column-shaped electroplated electrodes
		disposed on said metal plate composed of said low TCR
		metallic material.
30	24.	The resistor array of claim 23 further comprising:
→	~1 ·	The resistor array of claim 25 further compressing.
		a plurality of scribing lines for scribing said metal plate into
		a plurality of resistors each comprising at least two
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electrodes.

	23.	The resistor array of claim 23 wherein:
		said low TCR metallic material composed of said metal plate
		further comprises a nickel-copper alloy.
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	26.	The resistor array of claim 23 wherein:
		said plurality of column-shaped electroplated electrodes
		further comprises a copper layer and a tin-lead alloy layer.
10	27.	The resistor array of claim 23 wherein:
		said plurality of column-shaped electroplated electrodes
		disposed on said metal plate having a precisely defined
15		position for providing precisely defined resistance for each
		of said resistors ranging between one milli-ohm to one ohm.
	28.	The resistor array of claim 23 wherein:
20		each of said resistors having a thickness ranging between
		0.05 to 0.5 millimeters and a length ranging between 1.0 to
		7.0 millimeters.
	29.	The resistor array of claim 23 wherein:
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		each of said plurality of column-shaped electrodes having a
		width and length ranging between 0.1 to 3.2 millimeter, a
		height ranging between 0.05 to 0.5 millimeters and distance
		ranging between 0.4 to 6.2 millimeters between every two
30		electrodes.

	30. \	A resistor supported on a metal plate composed of a low
	temperature	coefficient of resistance (TCR) metallic material, said resistor
	comprising:	
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5		at least two electrode columns composed of said low TCR
		metallic material disposed on said metal plate.
		The second of the said fictal plate.
	31.	The resistor of claim 26 further comprising:
	01.	The resistor of claust 20 further comprising:
10		at least an electrode lever dispensed as as it of a till to the
10		at least an electrode layer disposed on each of said electrode
		columns to form an electrode for each of said electrode
		columns./
		/ X \
	32.	The resistor of claim 30 wherein:
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		said low TCR metallic material composed of said metal plate
		further comprises a nickel-copper alloy.
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	33.	The resistor of claim 30 wherein:
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		said electrode layer disposed on each of said electrode
		columns further comprises a copper layer and a tin-lead
		_ \
		alloy layer on each of said electrode columns.
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	34.	The resistor of claim 30 wherein:
		said electrode columns disposed on said metal plate having
_		a precisely defined position for providing precisely defined
5		resistance for said resistor ranging between one milli-ohm to
		one ohm.\
	35.	The resistor of claim 30 wherein:
10		said resistor having a thickness ranging between 0.05 to 0.5
		millimeters and a length ranging between 1.0 to 7.0
		millimeters.
1 =	36.	The resistor of claim 30 wherein:
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		each of said electrode columns on said metal plate having a
		width and length ranging between 0.1 to 3.2 millimeter, a
		height ranging between 0.05 to 0.5 millimeters and distance
20		ranging between 0.4 to 6.2 millimeters between every two
20		electrode columns.
	37.	A marintana and a same a same and a same and a same and a same and a same a same a same and a same
		A resistor supported on a metal plate composed of a low
	comprising:	coefficient of resistance (TCR) metallic material, said resistor
25	comprising.	at least true column also also also also also also also also
20		at least two column-shaped electroplated electrodes
		disposed on said metal plate composed of said low TCR metallic material.
		metanic material.
	38.	The resistor of claim 37 wherein:
30		The resistor of claim 57 wherein.
		said low TCR metallic material composed of said metal plate
		further comprises a nickel-copper alloy.

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39. The resistor of claim 37 wherein: said column-shaped electroplated electrodes further comprises a copper layer and a tin-lead alloy layer. 5 40. The resistor of claim 37 wherein: said column-shaped electroplated electrodes disposed on said metal plate having a precisely defined position for 10 providing precisely defined resistance for said resistor ranging between one milli-ohm to one ohm. 41. The resistor of claim 37 wherein 15 said resistor having a thickness ranging between 0.05 to 0.5 millimeters and a length ranging between 1.0 to 7.0 millimeters. 42. The resistor of claim 37 wherein: 20 each of said column-shaped electrodes having a width and length ranging between 0.1 to 3.2 millimeter, a height ranging between 0.05 to 0.5 millimeters and distance ranging

between 0.4 to 6.2 millimeters between every two electrodes.